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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/683,863

02/25/2002

Robert Michael Bunce

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03/26/2004

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EXAMINER

EL HADY, NABIL M

ART UNIT

PAPER NUMBER

2154

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,863

Applicant(s)

BUNCE ET AL.

Examiner

Nabil M El-Hady

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2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. Claims 1-18 are pending in this application.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 6, 10, 11, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rhoades et al. (US 2003/0041163).

4. As to claim 1, Rhoades discloses the invention as claimed including a method for pipelining processing of a packet within a packet protocol handler (abstract), said method comprising: performing a packet processing task with respect to a packet in a first processor or a first thread; and performing subsequent packet processing tasks with respect to said packet utilizing subsequent processors or threads, wherein said subsequent processors or threads are dynamically allocated ([0053]; [0054]; [0058]; [0062]; [0064]; and [0074];).

5. As to claim 10, the claim is rejected for the same reason as claim 1 above. In addition, Rhoades discloses a system for pipelining processing of a packet within a packet protocol handler, said system comprising: processing means for performing a packet processing task with respect to a packet in a first processor or a first thread; and processing means for performing subsequent packet processing tasks with respect to said packet utilizing subsequent processors or threads, wherein said subsequent processors or threads are dynamically allocated ([0053]; [0054]; [0058]; [0062]; [0064]; and [0074])

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6. As to claims 2 and 11, Rhoades discloses said subsequent processors or threads have associated input work queues ([0053]), said method further comprising: determining the available capacity of said input work queues; and dynamically allocating said subsequent packet processing tasks to said subsequent processors or threads in accordance with said determined available capacity of said input work queues (inherent in [0053], [0081]; and [0086]).

7. As to claims 6 and 15, Rhoades discloses performing inbound packet processing within said packet protocol handler utilizing an inbound direct memory access (DMA) controller ([0128]). Rhoades, also, discloses initiating a first processing thread within said first processor, wherein said first processing thread: obtains a memory address for said packet; and sets up an inbound DMA for said received packet utilizing said inbound DMA controller (inherent in [0074]).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3-5, 12-14, and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoades et al. (US 2003/0041163).

10. As to claims 3, 5, 8, 12, 14, and 17, Rhoades disclose that delivering a protocol processing task subset pointer into said one of said input work queues is in response to input work queue capacity availability determination, and placing the pointer to the memory location

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where said packet resides to the input work queue ([0081] and [0096]). However, Rhoades does not explicitly disclose that said capacity availability determination including whether or not one of said input work queues exceeds a predetermined threshold. It is well known in the art of buffer management, and hence it would have been obvious to one skilled in the art at the time of the invention that comparing a queue capacity with a threshold value may be used to optimize the use of buffer storage area.

11. As to claims 4 and 13, Rhoades does not explicitly disclose issuing a pipeline synchronization signal to the subsequent processor or thread. However, it is well known and obvious in the art that a synchronization signal is used to initialize communication with different pipeline stage units.

12. Claim 7, 9, 16, and 18, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hoof et al. (US 2002/0054594) ; Modelski et al. (US 2002/0120828) ; and Modelski et al. (US 6,665,755).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nabil M El-Hady whose telephone number is (703) 308-7990. The examiner can normally be reached on 9:00 - 4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 21, 2004



Nabil El-Hady, Ph.D, M.B.A.
Primary Patent Examiner
Art Unit 2154